

(12) UK Patent Application (19) GB (11) 2 222 503 (13) A
(43) Date of A publication 07.03.1990

(21) Application No 8820885.5

(22) Date of filing 06.09.1988

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(51) INT CL^{*}
H04Q 7/04

(52) UK CL (Edition J)
H4K KFD

(56) Documents cited
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WO 82/04491 A1

(58) Field of search
UK CL (Edition J) H4K KFD KYR
INT CL^{*} H04Q

(54) Locating apparatus

(57) A PABX incorporating locating apparatus has a plurality of receivers each located in proximity to or within an extension telephone set and also has a plurality of transceivers. Each transceiver is intended to be carried by a person normally present within the building in which the PABX is installed and is arranged to transmit to the nearest receiver information about the identity and personal status of the carrier of that transceiver. The PABX is arranged to respond to that identity and personal status by, for example, routine incoming calls to the extension telephone set nearest the carrier of that transceiver.

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LOCATING APPARATUS

This invention relates to locating apparatus and is applicable to a novel private automatic branch exchange (PABX) incorporating locating apparatus.

It is now common to provide a PABX with means for controlling the outgoing calls of each extension. For example, it may be arranged that a group of extensions can only receive incoming calls from outside the system, a group of extensions can only call numbers within a local area, a group of extensions can call long distance but cannot call overseas and another group of extensions have no restrictions whatsoever.

Various other features are possible, such as "follow me", that is to say, when a person goes out of his normal room to a different location within the same PABX system, he can dial the extension to which he is closest to ensure that calls intended to reach his office, reach that extension; of course this requires a special code. In practice when a person is moving about a building, that person does not always remember to carry out the "follow me" procedure for calls.

One problem with this known system is that when an important person in the organisation, who is normally able to carry out whatever outgoing calls he wishes, leaves his office and goes to another office, he may not be able to use the extension for an outgoing call, which is obviously disadvantageous. Another

problem with this known PABX is that when a person fails to utilise the "follow me" procedure, in practice he cannot be reached if he is outside the office.

It is an object of this invention to provide a locating apparatus which alleviates the stated problems.

According to this invention, there is provided locating apparatus including a plurality of receivers, each located in proximity to or within an extension and a plurality of transmitters, each transmitter being intended to be carried by a person normally present within a building in which the apparatus is installed, each transmitter being arranged to transmit to the nearest receiver information about the identity, and the personal status, of the carrier of the transmitter, the apparatus being arranged to respond to that identity and personal status.

The locating apparatus may respond to the identity and personal status by giving an indication to an operator of the location of the person carrying that transmitter.

The locating apparatus may be comprised within a PABX.

The PABX may be arranged to control the extension nearest a person carrying a transmitter to route calls to that extension intended for that person. The PABX may be arranged to ensure that a call is only passed to that extension provided certain criteria are met; the criteria may include:-

1. The status of the person permits that call.
2. The status of the caller permits that call.

Each transmitter may have a size approximately that of a conventional pager and may indeed act as a pager in that it responds to a signal transmitted by a central interrogator to emit a sound to alert the carrier of that transmitter that he is required. In this case the transmitter is part of a transceiver.

Each transceiver may only transmit on a poled basis in response to a signal transmitted by the PABX.

It may be arranged that when a call is diverted to the extension nearest to the carrier of a transceiver, that extension and that transceiver both emit the same characteristic ringing pattern.

Another possibility is that when the PABX detects that a carrier of a transceiver is away from his normal extension, the transceiver alone emits a sound and the carrier is required to lift the nearest free extension to dial an access code to take up the call and he is allocated a unique access.

The personal status transmitted could, for example, include any of the following:-

1. Allow all calls.
2. Allow only class 'n' calls.
3. Allow all calls up to class 'n'.
4. Allow all calls above class 'n'.
5. The carrier does not wish to be disturbed because, for example, he is at lunch.

6. The carrier is in an area of the building where he cannot be disturbed, for example, the toilet. For this purpose there could be a special receiver in such an area which has no adjacent extension but which merely transmits the information that the carrier is in a position where he cannot be disturbed.
7. All calls are to be diverted to a secretary or electronic mail box or the like.

A processor could be arranged to log all status transmissions. It would be preferred if each receiver is part of an extension telephone set but could be just adjacent thereto.

If the transmitter is arranged to transmit information of the nature that the carrier does not wish to be disturbed, it will have to include a push button or buttons or a key pad operable by the carrier. Assuming this to be the case, when the carrier operates the push button or buttons to change his status signal, it is preferably arranged that the PABX transmits back to that transmitter (which is part of a transceiver), a signal which causes that transceiver to emit a sound to indicate to the carrier that the PABX has responded to the change of status.

It could be arranged that on each movement of the carrier from adjacent to one telephone extension to adjacent to another telephone extension a sound is emitted by the transceiver in response to a signal received from the PABX; this would indicate to the carrier that the PABX is aware of his change of location.

It could be arranged that the transceiver has a display (e.g. an LCD display) to indicate the status he has transmitted to the PABX or to display information about incoming calls. It could further be arranged that when the transceiver could transmit a signal indicating the carrier does not wish to take a particular incoming call, the call is then automatically diverted. This allows the carrier to make sure he is available for essential calls.

Further, it could be arranged that when the carrier is utilising a telephone extension for one call, an incoming call could be indicated to him via the display on the transceiver.

CLAIMS

1. A locating apparatus including a plurality of receivers, each located in proximity to or within an extension and a plurality of transmitters, each transmitter being intended to be carried by a person normally present within a building in which the apparatus is installed, each transmitter being arranged to transmit to the nearest receiver information about the identity, and the personal status, of the carrier of the transmitter, the apparatus being arranged to respond to that identity and personal status.

2. A locating apparatus according to claim 1 which responds to the identity and personal status by giving an indication to an operator of the location of the person carrying that transmitter.

3. A PABX according to claim 1 or claim 2 incorporating a locating apparatus.

4. A PABX according to claim 3 which is arranged to control the extension nearest a person carrying a transmitter to route calls to that extension intended for that person.

5. A PABX according to claim 4 which is arranged to ensure that a call is only passed to that extension provided certain criteria are met.

6. A PABX according to any of claims 3 to 5 wherein each transmitter has a size approximately that of a conventional pager and acts as a pager in that it responds to a signal transmitted by a central interrogator to emit a sound to alert the carrier of that transmitter that he is required.

7. A PABX according to any preceding claim wherein each transmitter only transmits on a poled basis in response to a signal transmitted by the PABX.
8. A PABX according to claim 4 wherein when a call is diverted to the extension nearest to the carrier of a transmitter, that extension and that transmitter both emit the same characteristic ringing pattern.
9. A PABX according to any preceding claim wherein each transmitter is manually operable to emit signals to which the PABX responds.
10. A PABX according to any preceding claim which includes a display for signals from the PABX.